

# China Communications Green Base Station Construction





## Overview

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How many 5G base stations are built in China?

As 5G serves as the foundation for the construction of new infrastructure, China, as the world leader in 5G base station construction, has already built over 1.4 million 5G base stations in 2021 alone. In the same year, 5G base stations in China produced approximately 49.2 million tons of CO<sub>2</sub> eq.

Can solar power improve China's base station infrastructure?

Traditionally powered by coal-dominated grid electricity, these stations contribute significantly to operational costs and air pollution. This study offers a comprehensive roadmap for low-carbon upgrades to China's base station infrastructure by integrating solar power, energy storage, and intelligent operation strategies.

Should China upgrade to low-carbon base stations?

These outcomes demonstrate that upgrading to low-carbon base stations not only ensures economic feasibility but also delivers significant environmental and public health benefits, reinforcing the strategic value of decarbonizing China's communication infrastructure.

Do communication base station operations increase electricity consumption in China?

Comparing data from 2021, 2025, and 2030, 41 we found that the electricity consumption due to communication base station operations in China increased annually.



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China to construct over 4.5 million 5G base ...

Jan 2, 2025 · China ended 2024 with over 4.19 million 5G base stations China plans to construct over 4.5 million 5G base stations in 2025 while ...

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Low-carbon upgrading to China's communications base stations ...

Nov 21, 2025 · As China rapidly expands its digital infrastructure, the energy consumed by communication base stations has grown dramatically. Traditionally powered by coal ...

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Low-carbon upgrading to China's communications base ...

Sep 1, 2025 · SCIENCE FOR SOCIETY As China rapidly expands its digital infrastructure, the energy consumed by communication base stations has grown dramatically. Traditionally ...

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Aug 27, 2025 · On the one hand, China has built the world's largest number of communication base stations due to its large population and the huge communication demand for areas such ...

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Remake Green 5G

Nov 10, 2022 · China Telecom has been enhancing the urgency and practicality of promoting the Net Zero, building green new cloud networks, and building green 5G base stations. The new ...

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China to construct over 4.5 million 5G base stations in 2025

Jan 2, 2025 · China ended 2024 with over 4.19 million 5G base stations China plans to construct over 4.5 million 5G base stations in 2025 while introducing additional policy and financial ...

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Low-Carbon Sustainable Development of 5G Base Stations in China

May 3, 2024 · In order to increase the contribution of the communication industry to mitigate the global greenhouse effect, future efforts must focus on reducing the carbon emissions ...

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Ambitious 5G base station plan for 2025

Nov 23, 2025 · Technicians from China Mobile check a 5G base station in Tongling, Anhui province. [Photo by Guo Shining/For China Daily] China aims to build over 4.5 million 5G base ...

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China Mobile - Renewable energy and green base station ...

Aug 7, 2025 · China Mobile added 467,000 5G base stations while achieving a 2% reduction in overall base station energy consumption in 2024.

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China Communications construction company Ltd.

Oct 27, 2025 · These green power sources ensure 100% self-sufficiency in energy for the terminal's production and operations. The entire terminal construction uses eco-friendly ...

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### Ambitious 5G base station plan for 2025

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